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REMARKS

Claims 1-14, 24 and 25 are pending in this application. A final Office Action was issued in this Application December 18, 2009, and an Appeal Brief filed May 18, 2010. Prosecution has now been reopened.

By this Amendment, claim 1 has been amended to incorporate the features of claim 2 and to recite that the duct connecting the outlet from a first stator-rotor device to an axial inlet in a successive stator-rotor device has a spiral shape, support for which can be found at page 6, lines 4-6. Claim 3 was amended to correct claim dependency. Claim 2 has been cancelled. Entry and consideration of this Amendment is earnestly requested in that it does not introduce new matter.

Claim Rejections

Rejections under §35 U.S.C. 103

- A. Response to rejection of claims 1-5, 7-14, and 24-25 under 35 U.S.C. §103(a) as being unpatentable over Povey et al. in view of Hetherington, Arletti et al. and Ferraris et al.

In response to the Rejection of claims 1-5, 7-14, and 24-25 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 1,489,786 of Povey et al. ("Povey") in view of U.S. Patent No. U.S. 2,461,276 of Hetherington ("Hetherington"), U.S. Patent Application Publication No. U.S. 2003/0096699 of Arletti et al. ("Arletti") and U.S. Patent No. 4,459,649 of Ferraris et al. ("Ferraris"), Applicants submit that a *prima facie* case of Obviousness has not been made out and traverse the Rejection.

With respect to a rejection under 103(a), the U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under §103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of non-obviousness. Accordingly, for the Examiner to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally

available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. See MPEP §2143. Finally, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. (BNA) 580 (C.C.P.A. 1974).

With respect to Povey, upon review, Applicants wish to withdraw previous arguments that Povey do not teach an initial portion of the duct being oriented in a direction substantially tangential to the circumference of the rotor, and acknowledge the Examiner's comments in paragraph 7, page 5 of the current Office Action.

Povey relates to a machine for disintegrating solid material in the presence of a liquid, and for the emulsification or admixture of liquids. The Examiner has acknowledged that Povey do not teach: a second stator-rotor device connected to the first, a Reynolds number inside the connecting duct higher than 5000, where the duct connects to an axial inlet in the second rotor-stator device, or a Reynolds number inside the duct of higher than 5000. However, in addition, Povey do not teach a duct having a spiral shape or a multistage process, as in the current claims.

To remedy the deficiencies of Povey, the Examiner has relied upon Hetherington. However, Hetherington also does not teach a duct having a spiral shape. Moreover, there would not have been a reasonable expectation of success in modifying Povey in light of Hetherington because Hetherington relates to the manufacture of a finished grease by dispersing a soap stock and mineral oil in a mixing apparatus. Accordingly, the chemical substance withdrawn from the mixer of Hetherington is a solid or semi-solid substance (a grease) and not an emulsion of two immiscible liquids, as described in the current claims. Further, as shown in Fig. II, the rotor-stator devices of Hetherington are arranged at a very close distance, so that the material exiting from a rotor-stator is subjected to sharp deviations and impact against obstacles (see arrow 64) when flowing in the duct connecting two successive rotor-stator devices. In contrast, in the currently claimed process, the emulsion exiting from the rotor-stator device does not impact against walls and is not subjected to sharp deviations. Sharp deviations and impact against obstacles imply a considerable decrease of the energy and turbulence (Re number) provided by the shearing action of the rotor to the emulsion. In the currently claimed process, the stirring and shearing action provided by the rotor is maintained substantially unaltered during the transfer to the successive mixing step, thanks to the spiral shape of the connection duct and the initial portion of the duct which is substantially tangential to the rotor circumference. The peculiar

shape of the connecting duct and its high turbulence ($Re_T > 5000$) minimizes the coalescence phenomena in the transfer between successive mixing steps.

The Examiner also relies upon Arletti or Ferraris as allegedly teaching the claimed Reynolds number. However, neither Arletti nor Ferraris describe multiple rotor stator devices, or the accompanying Reynolds numbers as in the present claims.

With respect to Arletti, vessel 1 along with its stirrer 4, and cooling bath 15 along with tubular zone 20 are not rotor-stator devices. Vessel 1 is simply a stirred tank and has no stator at all. The fact that a vessel is equipped with a stirrer, and happens to have internal piping does not qualify the combination as a rotor-stator device, as in the present claims. Similarly, cooling bath 15 is simply a stirred tank with a draft tube. The fact that it has a stirrer 16 and a tubular zone 20 does not qualify the combination as a rotor-stator device, as in the present claims. The Examiner has pointed to paragraph [0035] as allegedly being proof of Arletti teaching a rotor-stator device, however, Arletti's discussion of a rotor-stator device is completely generic, and in any event, refers only to step (a) in vessel 1, not vessel 15.

With respect to Ferraris, contrary to the Examiner's contention, heating sleeve 20 and cooling chamber 40 are not rotor-stator devices at all. The Examiner presumably meant to refer to vessels 10 and 36. However, vessel 10 is simply a jacketed stirred tank. The fact that vessel 10 contains a stirrer 16 does not make it a rotor stator device as in the recited claims. Vessel 10 has no stator at all, and in any event, does not contain a rotor-stator as in the present claims. Vessel 36 is also simply a stirred tank. The fact that it has a stirrer 38 does not make it a rotor-stator as in the recited claims. Vessel 36 contains no stator at all, and in any event, does not contain a rotor-stator as in the present claims.

Therefore, with respect to both Arletti and Ferraris, the Examiner relies upon the teaching of a Reynolds number from stirred tank systems that are simply not rotor-stator devices as in the current claims.

Moreover, it is improper to combine Povey and Arletti, since Povey actually teaches away from combination with Arletti. Povey disclose a device that disintegrates solid materials (page 2, right column, lines 103-110), while Arletti is specifically designed to solidify materials out of solution in a carefully designed way so as to affect the solids morphology and particle size distribution. It is well settled that there is no suggestion or motivation to make a proposed modification if the modification would render the prior art invention being modified

unsatisfactory for its intended purpose. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

Therefore, for all the above reasons, there would be no reasonable expectation of success in modifying the references to arrive at the present claims as proposed by the Examiner, and such a modification does not represent the standard of Obviousness for the Federal Circuit since it “does not present a finite (and small in the context of the art) number of options easily traversed to show obviousness.” *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008).

Reconsideration and withdrawal of the Rejection respectfully is requested.

B. Response to rejection of claim 6 under 35 U.S.C. §103(a) as being unpatentable over Povey in view of Hetherington, Arletti, Ferraris and Konig et al.

In response to the Rejection of claim 6 under 35 U.S.C. §103(a) as being unpatentable over Povey in view of Hetherington, Arletti, Ferraris and U.S. Patent No. 4,089,835 of Konig et al. (“Konig”), Applicants submit that a *prima facie* case of Obviousness has not been made out and traverse the Rejection.

The threshold requirements of a Rejection under §103 have been described in paragraph A above, and are incorporated in this paragraph. As discussed above, the combination of Povey, Hetherington, Arletti, and Ferraris do not teach, suggest or disclose Applicants’ claimed multistage process. Konig does not remedy the deficiencies of Povey, Hetherington, Arletti, Ferraris and Konig. Claim 6 additionally recites a residence time of less than one second. In contrast, Konig teaches residence times of about 1 second up to 10 minutes. Konig also teaches as a preferred embodiment, residence times of 2 seconds to 3 minutes (col. 10, lines 38-40). Therefore, the lower limit of the preferred residence time range in Konig is over twice that of the upper limit in the recited claim, with the upper limit of the preferred residence time range being over 600 times that of the upper limit of the claimed residence time. Thus, Konig does not teach the claimed range of less than one second recited in claim 6 for the residence time. The ranges are not the same, and are in fact different. There would thus be no reasonable expectation of success in modifying the references as proposed by the Examiner, and the rationale of the Examiner does not represent the standard of Obviousness for the Federal Circuit since it “does not present a finite (and small in the context of the art) number of options easily traversed to

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show obviousness." *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008)

Reconsideration and withdrawal of the Rejection respectfully is requested.

Should the Examiner have questions or comments regarding this application or this Amendment, Applicant's attorney would welcome the opportunity to discuss the case with the Examiner. The Commissioner is hereby authorized to charge U.S. PTO Deposit Account 08-2336 in the amount of any fee required for consideration of this Amendment.

Respectfully submitted,


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I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office (Fax. No. 571-273-8300) on November 2, 2010.



NOVEMBER 2, 2010

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